

NATURAL HISTORY
SOCIETY *of*
MANITOBA



NINETEEN HUNDRED AND TWENTY-ONE

NATURAL HISTORY SOCIETY *of* MANITOBA



NINETEEN HUNDRED AND TWENTY-ONE

Natural History Society of Manitoba

1921

Honorary President	W. G. SCOTT
President	H. M. SPEECHLY, M.D.
Vice-Presidents	<div> <div>NORMAN CRIDDLE</div> <div>J. J. GOLDEN</div> <div>MRS. C. P. ANDERSON</div> <div>PROF. C. H. O'DONOGHUE</div> <div>PROF. F. W. BRODRICK</div> <div>PROF. V. W. JACKSON</div> </div>
Treasurer	MISS HELEN R. CANNOM
General Secretary	A. M. DAVIDSON, M.D.

Ornithological Section—

Chairman	A. G. LAWRENCE
Secretary	B. W. CARTWRIGHT
Leaders	<div> <div>H. M. SPEECHLY, M.D.</div> <div>J. J. GOLDEN</div> <div>C. E. KEIGHLEY</div> <div>GRANT McDOUGALL</div> </div>

Entomological Section—

Chairman	J. B. WALLIS
Secretary	C. V. WHITEHEAD
Leaders	<div> <div>L. H. ROBERTS</div> <div>SHIRLEY BROOKS</div> <div>A. V. MITCHENER, B.S.A.</div> <div>J. D. SUFFIELD</div> <div>J. D. DUTHIE</div> </div>

Botanical Section—

Chairman	PROF. V. W. JACKSON
Secretary	MRS. K. G. McDOUGALL
Leaders	<div> <div>JAMES COCKS</div> <div>PROF. F. W. BRODRICK</div> <div>DR. G. R. BISBY</div> <div>C. W. LOWE, M.Sc.</div> <div>H. F. ROBERTS, M.Sc.</div> </div>

Sub-section—Mycology—

Leader	DR. G. R. BISBY
--------------	-----------------

Geological Section—

Chairman	PROF. R. C. WALLACE
Secretary	A. A. McCoubrey

Constitution of the Natural History Society of Manitoba.

- I. Name.
- II. Objects or aims.
- III. Membership.
- IV. Annual Fees.
- V. Officers.
- VI. The Executive Committee.
- VII. Auditors.
- VIII. Meetings.
- IX. Order of Business at the Annual Meeting.
- X. Elections.
- XI. Term of Office.
- XII. Vacancies.
- XIII. Quorum.
- XIV. Duties of Executive.
- XV. Duties of President.
- XVI. Duties of Vice-President.
- XVII. Duties of Secretary.
- XVIII. Duties of Treasurer.
- XIX. Duties of the Chairman of a Section.
- XX. Duties of the Secretary of a Section.
- XXI. Amendments.
- XXII. Departments.
- XXIII. Order of Business at Meetings of Executive.

Article I.—Name

This Society shall be known as "The Natural History Society of Manitoba."

Article II.—Objects

The objects of the Society shall be: To foster an acquaintance with and a love for nature; to study especially the natural history of the Province of Manitoba; to encourage investigation and to publish the results of original research in all departments of natural history; to arrange for out-of-door excursions during the summer months; to provide free lecture courses during the winter months; and in a general way to render assistance to students or others interested in Nature Study.

Article III.—Membership

a. Active. Any one interested in Natural History may upon application be elected by the Executive Committee as an active member of the Society. Payment of the annual fee shall be a necessary condition of the continuance of membership.

b. Corresponding. Any person who is desirous of promoting the objects of the Society, may be elected by the Executive Committee as a corresponding member.

Article IV.—Annual Fee

The Annual Membership Fee shall be One Dollar, payable in advance immediately after the annual meeting.

Corresponding Members shall not be required to pay a Fee.

Article V.—Officers

The Officers of the Society shall be: An Honorary President, a President, Vice-Presidents, one General Secretary, one Treasurer, and the Chairman and the Secretary of each Section.

By decision of the Society or Executive two offices may, if necessary, be filled by one person for one year.

Article VI.—Executive Committee of the Society

The Executive Committee of the Society shall consist of the Officers of the Society. Upon retirement of any President of the Society from office he shall, if still resident in Manitoba, continue a member of the Committee for one year.

Article VII.—Auditors

The Auditors shall be elected by open vote at the Annual Meeting. They shall examine the Treasurer's accounts and certify as to their correctness.

Article VIII.—Meetings

a. The Annual Meeting of the Society shall be held on the last Monday in April.

b. Special Meetings of the Society may be called by the Executive Committee, or shall be called by the Secretary on the request of ten active members. At these meetings no business other than that for which the meeting was called shall be transacted except by unanimous decision of those present.

c. All questions submitted for discussion at the meetings of the Society shall be in harmony with the expressed objects of the Society. The mover of a resolution shall be allowed ten minutes to speak in presenting his motion. Five minutes shall be allowed each of the subsequent speakers, and to the mover in closing the discussion.

Article IX.—Order of Business at the Annual Meeting

1. Reading of the Minutes of the previous Annual Meeting, and of any special meetings held during the year.
2. Business arising out of the minutes.
3. Communications.
4. Report of the Executive Committee.
5. Report of the Treasurer.
6. Report of Special Committees.
7. Election of members of the Executive Committee.
8. Election of Auditors.
9. Notices of Motion.
10. New Business.
11. Suggestions for the good of the Society.

Article X.—Elections

The Officers of the Society shall be elected by ballot at the Annual Meeting.

Article XI.—Term of Office

The Officers, the other members of the Executive Committee, and Auditors shall hold office during the year following the Annual Meeting, or till their successors are appointed.

Article XII.—Vacancies

The Executive Committee shall have power to accept any resignations and to appoint any active member of the Society to fill any vacancy occurring during the Society year.

Article XIII.—Quorum

Twenty members shall constitute a quorum at the Annual Meeting or any other business meeting of the Society, and three members shall constitute a quorum of the Executive Committee.

Article XIV.—Duties of the Executive Committee

The Executive Committee shall, as business may require, meet from time to time at the call of the President, or of any two other of its members; it shall manage all matters affecting the welfare of the Society; it shall have full control of the funds of the Society, and it shall present at the Annual Meeting a report upon the year's work.

Article XV.—Duties of the President

The President shall preside at all general meetings, excursions and other meetings of the Society. He shall be chairman at the meetings of the Executive. He shall conduct all business of the Society in accordance with its Constitution and By-Laws. He shall be, ex-officio, a member of all committees of the Executive and of the Society.

Article XVI. Duties of Vice-Presidents

In the absence of the President, or at his request, a Vice-President shall, in order of rank, preside.

Article XVII.—Duties of the Secretary

The Secretary shall keep a true record of the proceedings of the Society and of the Executive Committee, and shall conduct their correspondence. He shall give previous notice to each member of the Executive Committee of its various meetings. He shall be the custodian of the Constitution and By-Laws and the records of the Society. He shall prepare reports of the meetings of the Executive Committee. He shall be compiler of the Annual Report of the Executive and shall read it at the Annual Meeting of the Society. He shall forward Membership Tickets to each member of the Society.

Article XVIII.—Duties of the Treasurer

The Treasurer shall be charged with the collection and custody of the moneys of the Society, and shall keep a systematic account thereof, which shall at any time be open to the inspection of the Executive or of the Auditors. The Treasurer shall submit at each Annual Meeting a statement showing the financial standing of the Society. The Treasurer shall make disbursements only when authorized by the By-Laws or by decision of the Executive.

Article XIX.—Duties of the Chairman of a Section

The Chairman of a Section shall preside at the Meetings, Lectures and Excursions of his Section. He shall be responsible for the supervision of all matters appertaining to his Section.

Article XX.—Duties of the Secretary of a Section

The Secretary of a Section shall duly record and report to the General Secretary all the activities of his section, and in the absence of the Chairman of a Section assume his duties.

Article XXI.—Amendments

An amendment to this Constitution may be passed at an Annual Meeting of the Society by a two-thirds vote of the members present, notice having been given at a previous Annual Meeting or to the Executive Committee at least two weeks previous to such Annual Meeting.

Article XXII.—Departments

The Society recognizes the following departments of Natural History, Archaeology, Botany, Entomology, Geology, Ornithology, Zoology, Conchology.

Members may form groups for intensive study in the departments in which they are respectively interested.

Article XXIII.—Order of Business at Meetings of Executive Committee

1. Reading minutes of previous meeting.
2. Business arising out of minutes.
3. Communications.
4. New Members.
5. Reports of Committee.
6. New Business.

A FORWARD STEP

Any piece of work that links and co-ordinates effort with a view to building up, with a view to construction rather than destruction, must at the present time command respect. The Natural History Society for Manitoba, after a year of generous effort in this direction, feels able now to use printer's ink in order that it may record its doings, facts, and observations for the service of the public, but especially of the young people of all ages who have enthusiasm for Nature. While the Society serves as a connecting link between the enthusiastic amateur and the equally enthusiastic but more exacting scientist, it desires to maintain strict standards of truth and accuracy of method. It does not stand for slipshod make believe. If it did, it would not appeal to the many truly scientific men, both extra mural and in the University, who have given it such ungrudging support. The Executive will hope to serve also those members who live in rural districts by acting as a bureau of information and a centre for gathering reports and specimens for preservation in that Provincial Museum which every true naturalist desires to see and visit in Winnipeg.

As a more permanent record of the Society's activities during the past winter we herewith append that programme which, conceived with some little fear and trembling, was carried through with scarcely a break, and is therefore worthy of preservation.

H. M. SPEECHLY.

LECTURES AND DEMONSTRATIONS—Winter Session 1920-1921

Oct. 4th—Opening Meeting	Dr. H. M. Speechly and J. D. Duthie
Oct. 11th—Life Histories of Insects.....	Norman Criddle
Oct. 25th—Song Birds	J. J. Golden
Nov. 1st—Flowers in Their Relations with Insects	Prof. A. H. Reginald Buller
Nov. 8th—Classification of Insects	A. V. Mitchener, B.S.A.
Nov. 15th—Local Haunts of Flowers	James Cocks
Mounting of Flowers.....	H. R. Pattinson
Nov. 22nd—Anatomy and Classification of Birds	Prof. C. H. O'Donoghue
Nov. 29th—Manitoba Flora and Plant Collecting	C. W. Lowe, M.Sc.
Dec. 6th—Fabulous Animals	Prof. C. H. O'Donoghue
Dec. 13th—Butterflies of Manitoba.....	J. B. Wallis
Dec. 20th—Our Native Fruits of Mani- toba	Prof. F. W. Brodriek
Dec. 27th—Water Birds	A. G. Lawrence
Jan. 3rd—Ornithological Evening	Dr. H. M. Speechly and A. G. Lawrence
Jan. 10th—Insects in Relation to Agri- culture	A. V. Mitchener, B.S.A.
Jan. 17th—Mushrooms and Toadstools.....	G. R. Bisby, Ph.D.
Jan. 24th—Food and Habits of Birds.....	Prof. V. W. Jackson
Feb. 7th—The Development of Life.....	E. M. Burwash, Ph.D.
Feb. 14th—Manitoba Moths	J. B. Wallis
Feb. 21st—Plant Breeding or Kindred Subject.....	H. F. Roberts, M.Sc.
Feb. 28th—Nests and Eggs of Birds of Manitoba	A. G. Lawrence
Mar. 7th—Astronomy	L. A. H. Warren, Ph.D.
Mar. 14th—Nature Notes of Fox Lake.....	Gordon Bell, M.D.
Mar. 21st—Fossils of Labrea.....	E. W. Montgomery, M.D.
Mar. 28th—Birds of Prey	Norman Criddle
Apr. 4th—Ornithological Evening Social	Dr. H. M. Speechly and A. G. Lawrence
Apr. 11th—Collecting and Mounting In- sects	J. B. Wallis
Apr. 18th—Rushes, Sedges and Grasses of Manitoba	Prof. V. W. Jackson
Apr. 25th—Migration of Birds.....	A. G. Lawrence

BULLETIN No. 1

A COLOUR KEY TO THE MANITOBAN BUTTERFLIES

J. B. Wallis

One of the greatest difficulties those who are interested in Nature experience is their inability to find names for many of the things which they come across in their rambles or otherwise. To know a thing by its name is at once to invest it with a personality; it becomes a friend and on being again recognized is considered as such.

It is probably a fact, however, that most people would find it difficult to identify correctly even half a dozen of our butterflies. With this in view, the following Key has been prepared, in the hope that it may have some value and interest to those who would like to know by name a few of the fairy-winged inhabitants of our woods and prairies.

This Key covers the great majority of the species of butterflies known from the Province, and includes by far the greater number of those likely to be met with, say, south of The Pas. As one goes north, of course, various sub-arctic and arctic species, not mentioned here, may be found, but in order to simplify a very difficult matter as much as possible these are not given in the Key.

It should be noted that however well established a species may be, there will occasionally be found specimens that are not typical, that is, which depart in some particulars from the usual form. The Keys have been drawn up from specimens in my collection which have been identified by specialists and represent typical forms.

Differentiating species by colour only is absolutely unscientific, and it should be borne in mind that the proximity of species in the Key does not imply relationship. A list showing arrangement of species according to the latest check list is given.

So far as possible a striking difference has been used to differentiate species, but in some cases it has been found very difficult to make the matter as clear as could be wished, and perhaps several more or less obvious differences have had to be mentioned.

One of the dangers of using a Key is reading into it more than was intended. Allowing for the personal equation, the characters in your specimen must agree exactly with the characters in the Key. If they do not, look elsewhere, and better a species not identified than wrongly so. Colours, too, are of course largely a matter of opinion unless one has at hand for comparison one of the standard colour charts; but it is hoped the colours as given will not present any great difficulties. In a few especially difficult cases an approximate colour, as shown in Ridgway's "Nomenclature of Colours," is put in brackets following the ordinary name.

How to Use the Key

Commence at Group 1 and see if your insect belongs to that Group. If it does not, pass on to Group 2, and so on. It will not do to jump to a Group further down which seems to fit. For instance, Group 22 contains butterflies with "hind wings uniform in colour above." Now this does not mean that **all** butterflies with hind wings uniform in colour above, fall into this Group, but only **those which have not belonged to some preceding group**.

After deciding upon the group, turn to that Group in the "Key to Species," and, as before, compare your specimen with each description in turn. There may be two or more divisions in the group. Thus in Group 6, there are three divisions—A, B and C. First decide in which your specimen falls, and then compare it in turn with the species in that division. If it fails to agree with any, try the Group Key again, and if you still fail to run it down, decide that it is not given in the Key. I may say that I shall be pleased at any time to identify and return specimens. If the task is beyond me, I can always secure assistance.

Finally, this is a Key to Manitoba **Butterflies**, so be sure your specimen is not a **Moth**. All butterflies fly by day, most moths fly at night, but a few fly in the day like the butterflies, so a better test is found in the antennae or feelers. These in the butterflies are always thread-like, with a thickening at the outer end—that is, they are always more or less distinctly club-shaped. The antennae of moths may be of any other shape, but in our genera are never club-shaped.

(I wish to acknowledge gratefully the great assistance given to me in the preparation of this article by Mr. L. H. Roberts. His criticisms have proved invaluable, and most of the clerical work was done by him. To Dr. Skinner, of Philadelphia, and to Dr. McDunnough, of the Entomological Service at Ottawa, my acknowledgments for identifying material are due. Mr. Criddle, of Aweme, Man., Dominion Field Officer, has given me the benefit of his advice and criticism.)

KEY TO GROUPS

- Group 1**—Ground colour of upper side of wings chiefly blue, blue-green or blue-purple, sometimes dull with bluish or greenish scales near the base.
- Group 2**—Large yellow and black butterflies with tails.
- Group 3**—Upper side of wings rich chocolate brown margined with yellow, with a sub-marginal row of metallic blue spots.
- Group 4**—Upper side of wings yellow, greenish yellow or yellow-orange, sometimes very pale, bordered with black or very dark grayish brown. Colour generally distinctly bright. Under side largely yellow or yellow-green.

- Group 5**—Upper side of wings white, creamy white or greenish white, sometimes with grayish or grayish-black markings, pink fringes or orange discal spot on hind wing, but never any other colour.
- Group 6**—Upper side of wings brownish, usually dull, sometimes tawny, with eye-spots showing on both sides of wings.
- Group 7**—Upper side of wings dull brown to slaty; hind wings with very slender tails and sometimes with indefinite yellowish spots on upper side near these tails. Under side of hind wings with at least one blue and one red spot near tails.
- Group 8**—Almost or quite uniform dull brown above, hind wings without or with only traces of tails.
- Group 9**—Upper side of wings dark dull brown to grayish brown or even blackish, with white spots and sometimes also indefinite creamy spots or blotches, but never with obvious tawny markings.
- Group 10**—Colour of upper side dark dull brown, the forewings somewhat chocolate or purplish, with grayish shadings and irregular black lines.
- Group 11**—Uniform dark brown above with indefinite orange-brown shading showing on median area of forewings but not reaching margins.
- Group 12**—Outline of edge of wings somewhat indented or irregular and hind wings with short blunt tails; colour of upper side in part yellowish brown or brownish yellow (tawny) with conspicuous darker markings.
- Group 13**—Butterflies with one or more eye-like spots on under side of wings, conspicuous on hind pair, and sometimes showing more faintly on upper side. Colour of upper side in part bright tawny.
- Group 14**—Butterflies with a few or many white spots on upper side of wings; ground colour of upper side variable, but always with conspicuous yellowish-brown, brownish yellow (tawny) or red orange (orange rufous) markings.
- Group 15**—Under side of wings with silvery or silvery-white markings. Markings on upper side of blackish zigzag lines (usually heavy), roundish spots and crescents; colour of upper side in part conspicuously yellowish-brown (tawny, varying from light to dark).
- Group 16**—Under side same as in Group 15. Upper side of wings heavily margined with blackish, several curved blackish lines near base, these sometimes merging into blotches. Ground colour in part yellowish-brown (tawny).
- Group 17**—Under side of hind wings with large silvery blotch. Upper side of wings uniform dark brown with orange spots in middle of forewings, and several white dots near front margin towards apex.

Group 18—Under side not silvered. Ground colour of upper side yellowish-brown (tawny), with markings of wings zigzag blackish lines, dark spots and crescents, often with indefinite areas of dark brown.

Group 19—Ground colour yellowish-brown (tawny). On upper side, side margins of both wings rather heavily bordered with blackish, inner third or more of both wings with irregular curved lines merging into a cloud at the base. Under side of both wings shades of yellowish brown. Under side of forewings with several conspicuous blackish markings; usually part of margin of hind wing brown, in which there may appear a pearly crescent.

Group 20—Ground colour of upper side of wings yellowish-brown (light tawny), coppery (near walnut-brown with purplish reflections), or grayish-brown (hair-brown). Wings with rounded black spots, sometimes not visible above, usually much more conspicuous beneath. Margin of hind wings with a conspicuous sub-marginal row of orange-red crescents usually forming a continuous band and sometimes so heavy as to be almost a solid line. Margins of wings not irregular.

Group 21—Ground colour above part yellowish-brown (tawny). Upper side of forewings with a conspicuous black streak in middle of wing looking somewhat as if wing were injured.

Group 22—Ground colour above part yellowish-brown (tawny). Hind wings almost or quite uniform in color **above**.

Group 23—Ground colour above part yellowish-brown (tawny). Hind wings almost or quite uniform in colour **beneath**.

Group 24—Ground colour above part yellowish-brown (tawny). Underside of hind wings with spots sometimes forming irregular lines, but not blotches.

Group 25—Ground colour above part yellowish-brown (tawny). Under side of hind wings with large conspicuous irregular yellowish blotch.

KEY TO SPECIES

Group 1

A—Upper side of wings distinctly and usually brilliantly blue, blue-green or purplish blue.

(a)—Hind wings with short slender tails. Under side whitish gray.
 **Everes amyntula** (Male) (1)

(b)—Upper side of forewings with a dark dot, sometimes very faint, in front of the middle of the wing.

Sp. 2—Upper side blue (near flax-flower blue in some lights), under side silvery or grayish white with rows of black dots on both wings. In old specimens, owing to the rubbing off of scales, the underside is sometimes quite dark gray.....**Plebeius saepiolus** (Male) (2)

Sp. 3—Upper side pale blue. Under side of forewings with black dots—hind wings somewhat brown shaded, with white spots or blotches.
.....**Plebeius aquilo var rustica** (Male) (3)

(c)—Upper side of forewings without black dot.

Sp. 4—Under side uniform dark brownish gray, each wing with a row of heavy black spots, each of which is surrounded with a white ring. Occasionally the black spots on under side of hind wing more or less disappear—leaving the white.
.....**Glaucoopsyche lygdamus var couperi** (Male) (4)

Sp. 5—Under side of hind wings with very distinct sub-marginal row of orange spots tipped outwardly with metallic blue scales; front wings with a similar row of orange spots.....**Plebeius melissa** (Male) (5)

Sp. 6—Under side of hind wings with a row of small yellowish spots with very small patches of metallic scales. No orange spots on forewings below.
.....**Plebeius scudderi** (Male) (6)

Sp. 7—Under side very light gray—spots of forewings elongate, not rounded; hind wings with a sub-marginal band of angular crescents, each of which has outwardly a dark dot; no coloured scales on under side. Upper side uniformly blue.
.....**Lycaenopsis pseudargiolus** (Male) (7)

(ii) Under side of wings very light gray, sometimes almost immaculate. Upper side very pale blue with forewings in part heavily bordered with black; front margin of hind wings often also with black border.
.....**Lycaenopsis pseudargiolus** (Female) (7)

Sp. 8—Under side dull, rather dark, gray, markings rather heavy, but brownish rather than black; marginal band of hind wings heavy. Upper side with forewings heavily margined with brownish.
.....**Lycaenopsis pseudargiolus var marginata** (Female) (8)

(ii) As above, but forewings not margined.
Lycaenopsis pseudargiolus var marginata (Male) (8)

B—Colour of upper side varying but always showing some signs of blue scales, especially near base of wings.

(a)—Hind wings with short slender tails.

.....**Everes amyntula** (Female) (1)

(b)—Upper side of forewings with dark dot, sometimes faint, in front of middle of wing.

Sp. 2—See under “A”—Sp. 2.

.....**Plebeius saepiolus** (Female) (2)

Sp. 3—See under “A”—Sp. 3.

.....**Plebeius aquilo var rustica** (Female) (3)

(c)—Upper side of forewings without black dot.

Sp. 4—Under side of wings dark brownish gray with a row of black spots ringed with white on forewings, a similar row sometimes present on hind wings.

.....**Glaucopsyche lygdamus var couperi** (Female) (4)

Sp. 5—Upper side of both wings with a band of orange. Colour above brown.....**Plebeius melissa** (Female) (5)

Sp. 6—Upper side of hind wings with a few yellowish spots, often eye-like. Colour above blackish.

.....**Plebeius scudderi** (Female) (6)

Group 2

Sp. 1—Mostly yellow.....**Papilio glaucus var canadensis** (9)

Sp. 2—Mostly black. Forewings only narrowly black at base. Black markings running chiefly at right angles to front margin**Papilio polyxenes** (10)

Sp. 3—Black and yellow about evenly divided. Forewings with basal third black. Veins heavily marked with black, so that marking runs chiefly towards sides.

.....**Papilio zelicaon** (11)

Group 3

One species only.....**Aglais antiopa** (12)

Group 4

Sp. 1—Small fragile species not over $1\frac{1}{4}$ inches, usually about one inch across wings. Inner (or hind) margin of forewings broadly edged with dark.....**Nathalis iole** (13)

Sp. 2—Larger species. Light area of upper side of forewings very pale. Front margin of hind wings brighter. Inner margin of dark border of forewings very irregular. Under side of hind wings yellow with a pinkish diagonal mark.....**Eureme mexicana** (14)

A—Upper side near sulphur-yellow.

Sp. 3—Dark border of wings solid. Under side of hind wings

- (i) somewhat greenish. Outer margin of forewings usually almost straight. Discal spots on both pairs of wings distinct.....**Eurymus philodice** (Male) (15)

- (ii) Dark border of wings enclosing lighter yellow spots. Under side of hind wings somewhat greenish.

.....**Eurymus philodice** (Female)

Sp. 4—Dark border of wings solid. Under side somewhat greenish. Outer margin of forewings usually distinctly curved. Discal spots inconspicuous.

.....**Eurymus chippewa** (Male) (16)

Sp. 5—Dark border of wings solid. Fringes rose-coloured.

- (i) Under side of forewings at apex and entire under surface of hind wings rusty orange-yellow. Discal spot on hind wings silvery bordered with rosy-red.

.....**Eurymus interior** (Male) (17)

- (ii) Upper side of wings varying to very pale yellow. Tips and sometimes part of outer margin blackish. Below, tips of forewings and entire surface of hind wings rusty orange yellow. Discal spot on hind wing silvery bordered with rosy-red.

.....**Eurymus interior** (Female) (17)

B—Upper side bright light yellow (about canary yellow). Under side also yellow.

Sp. 6—Dark border of wings solid, inner edge of border

- (i) nearly straight. No dark cloud on inner fourth of forewings, though sometimes slightly darker at extreme base.

.....**Eurymus eurytheme form eriphyle** (Male) (18)

- (ii) Dark border of wings enclosing lighter yellow spots.

.....**Eurymus eurytheme form eriphyle** (Female)

Sp. 7—Dark border of wings solid; on forewings its inner margin very irregular, making somewhat the shape of a dog's head. A dark cloud on inner fourth of wing.

.....**Zerene caesonia** (20)

C—Upper side very distinctly bright light orange. Under side yellow shaded with orange.

Sp. 8—Dark border of wings solid.

- (i)**Eurymus eurytheme** (Male) (19)

- (ii) Dark border of wings enclosing lighter yellow spots.

.....**Eurymus eurytheme** (Female)

Group 5

Sp. 1—Upper side pure white with slight grayish shading along the veins and base. No spots.

.....**Pieris napi**, gen. vern., oleracea (21)

Sp. 2—Tips only of forewings on upper side distinctly dark. One or two black round spots on fore wings, very distinct beneath. Under side of hind wings and tips of fore wings yellow. Fringes white.

.....**Pieris rapae** (22)

Sp. 3—Tips and sometimes part of outer margin of fore wings above, blackish. Tips of fore wings and whole of hind wings below rusty orange yellow. Fringes pink.

.....**Eurymus interior** (Female) (17)

Sp. 4—A conspicuous dark spot near middle of front edge of fore wings; a row of indefinite dark spots between it and side margin. Under side white, with dark markings on fore wings.

.....**Pieris protodice** (23)

Sp. 5—A conspicuous dark spot near middle of front edge of fore wings. Hind wings beneath with three irregular greenish bands, these showing through above.

.....**Zegris olympia** (24)

Sp. 6—Fore wings above with dark spot near middle of front edge and with dark markings at tip. Hind wings above creamy with markings from below showing through. Hind wings below mottled with yellowish green over silvery white ground. Fore wings below with yellowish green diagonal band near tip.

.....**Euchloe ausonides** (107)

Sp. 7—Both wings bordered with dark. Colour white to greenish white. Yellow discal spot on hind wings and black discal spot on fore wings above.

.....**Eurymus eurytheme** (Female) (Albino) (19)

Sp. 8—Colour above faintly greenish white. Fore and hind wings from very faintly to distinctly margined with darker. Fringes pink. Tips of fore wings below yellowish green, hind wings below greenish yellow, (somewhat peppered with grayish-black scales). Discal spot on hind wings below, pearly.

.....**Eurymus chippewa** (Female) (16)

Group 6

A—Eye-spots on upper side of fore wings usually well defined, clearly pupilled, and two in number.

Sp. 1—Eye-spots with two patches of metallic scales in middle.....**Cissia eurytus** (25)

- Sp. 2—Eye-spots, especially the first on the hind wings, beautifully variegated with several colours. A reddish sub-marginal band on hind wings, and two red cross-bars on inner half near margin of fore wing.

.....**Junonia coenia** (26)

- Sp. 3—Both pairs of wings with a conspicuous sub-marginal band of elongate yellowish spots often almost merged on hind wings. No eye-spot on hind wings.

.....**Neominois ridingsi** (27)

- Sp. 4—Upper side almost uniform rich dark brown, with lighter shadings on outer two-fifths of fore wing. Eye-spots large and conspicuous, very distinctly ringed with yellow, especially on under side. Usually several small eye-spots on lower side of hind wings, occasionally one or more of which show through.

.....**Cercyonis alope var nephele** (28)

- Sp. 5—Eye-spots small, usually three in number, but the middle one sometimes very small or wanting. Upper side dull yellowish brown shaded with darker. Number of eye-spots on lower side of fore wings variable, usually entirely wanting on hind wings. Colour of under side of fore wings somewhat yellowish brown, with a distinct angulate brown line about one-third from margin. Tips grayish. Hind wings grayish brown and dark brown, each vein distinctly whitish.

.....**Oeneis alberta** (29)

- Sp. 6—Eye-spots small and usually two in number. Upper side dull brownish yellow, margins only slightly darker. Under side mottled grayish and dark brown. Fore wings not crossed by dark line. Veins of hind wings not whitish. Rarely over one and five-eighths inches.....

Oeneis uhleri var varuna (30)

- Sp. 7—Upper side of both wings tawny, outer margins of both wings distinctly and narrowly edged with darkish. Hind wings on the under side crossed by* a band of which the edges are distinctly darker than the middle part. Eye-spots variable, sometimes disappearing on hind wings. Rarely, if ever, smaller than one and seven-eighths inches.....

Oeneis macouni (31)

- B—Eye-spots on upper side of fore wings well-defined and variable in number, but not two only.

- Sp. 8—Eye-spots on hind wings usually five above and six below, and three or four on fore wings. Outline of hind wing somewhat irregular. Colour of hind wings below with purplish sheen.

.....**Enodia portlandia** (32)

- Sp. 9—Upper side of fore wings uniform dull dark brown except in vicinity of spots, which are darker than ground colour of wings and surrounded by a brownish yellow ring, these rings sometimes enlarging to form an irregular band. All spots somewhat indefinite. Fringes of wings of alternate white and brown patches of scales. Wings thin. Under side of hind wings mottled with gray.....**Oeneis jutta** (33)
- Sp. 10—Upper side of fore wings uniformly dark brown, with very distinctly pupilled dark spots set in an irregular band of yellow brown, spots on both wings strikingly contrasting. Under side of hind wings not mottled, but outer third lighter than inner two-thirds.
.....**Erebia epipsodea** (34)
- Sp. 11—Rarely over one and five-eighths inches across wings. Eye-spots on fore wings usually three in number, small, and the middle one sometimes wanting. Under side of hind wings veined with white. (See Section "A"—Sp. 5).....**Oeneis alberta** (29)
- Sp. 12—Rarely over one and five-eighths inches. Eye-spots small, usually three in number on fore wings, though sometimes four or two. Under side of hind wings not veined with white. (See Section "A"—Sp. 6).
.....**Oeneis uhleri var varuna** (30)
- Sp. 13—Eye-spots on fore wings above varying from four to none—below, usually four or more. Upper side of hind wings with four or five distinct and usually one or two indistinct eye-spots. Colour of upper side varying from a brownish cream to a middle brown, the inner two-thirds of wings being the darker. Spots below pupilled with white surrounded by dark and then with three rings of shades of yellowish brown.
.....**Satyrodes canthus** (35)
- Sp. 14—One eye-spot only near apex of fore wing, distinct below but showing through very faintly above. Colour of male rather a bright yellow brown, female darker brown. Under side—fore wings tipped with grayish, remainder yellow brown; hind wings gray-brown, with a whitish mark near middle.
.....**Coenonympha inornata** (36)
- Sec. 15—Upper side of both wings tawny, outer margins of both wings distinctly and narrowly edged with darkish. Hind wings on the under side crossed by a band of which the edges are distinctly darker than the middle part. Eye-spots variable, sometimes disappearing on hind wings. Rarely, if ever, smaller than one and seven-eighths inches.....**Oeneis macouni** (31)

Sp.16—Upper side of both wings tawny, inner half varying from somewhat to distinctly darker. Hind wings below marked with white specks or blotches, contrasting strongly with the rich brown background. Veins white.....**Oeneis chryxus var calais** (37)

C—On upper side, eye-spots on hind wings only. Ground colour of upper side of wings largely red-brown (tawny). **See Group 13.**

Group 7

A—Lines of spots on outer third of under side of hind wings mostly dark and mostly distinctly rounded.

Sp. 1—Marginal spots on under side of hind wings orange, usually four or five in number and forming almost a continuous band. Sub-marginal row of black crescents on forewings usually outwardly edged with yellowish. Both fore and hind wings below crossed by rows of black spots surrounded by white. Blue patch on under side of hind wing generally broadly margined above with orange.....**Strymon acadica** (38)

Sp. 2—Under side of forewings with a row of somewhat rounded spots margined with white, and slightly darker than the ground colour. A row of similar but still darker spots on hind wings. Blue patch on under side of hind wings, not or very narrowly margined above with orange.....**Strymon edwardsi** (39)

B—Markings on under side of hind wings all much longer than wide.

Sp. 3—Colour beneath brown (between sepia and hair-brown). Colour above also brown. Median markings on under side of hind wings very distinctly margined with white and in a fairly regular row with one large spot on inner side. Under side of fore wings with an irregular darker band edged very distinctly outwardly with white, and much less distinctly or not at all inwardly.....**Strymon calanus** (40)

Sp. 4—Under side of both wings with numerous pairs of very fine white lines, enclosing large darker areas.
.....**Strymon liparops** (41)

Sp. 5—Colour above usually somewhat slaty, beneath near drab gray, a large orange-red to scarlet spot on upper side of hind wings between the tails, with a black spot outwardly.....**Strymon melinus** (42)

Group 8

Sp. 1—Under side of hind wings, and usually forewings, with a row of red spots.....**Strymon titus** (43)

- Sp. 2—Uniform dark brown with bronzy reflections above and below; a black streak running diagonally on front wing.....**Euphyes vestris** (Male) (44)
- Sp. 3—Under side of wings pale brown, fore wings with a straight incomplete median band, hind wings with an irregular curved median band, the area between these lines and base of wing darker.
.....**Incisalia augustus** (45)
- Sp. 4—Darkish brown below; fore wings with an incomplete median dark line edged outwardly with white; outer edge grayish; hind wing with basal half dark, outer half grayish.....**Incisalia polios** (46)
- Sp. 5—Hind wings on under side contrastingly marked with irregular angulate bands of browns, the median edged outwardly with white. The under side of fore wings crossed by a contrasting band edged outwardly with white and sharply angulate on third median vein.
.....**Incisalia niphon** (47)
- Sp. 6—Usually with faint traces of eye-spots at least on fore wings below. (See Sp. 5, Group 6).—Certain forms of.....**Oeneis alberta** (29)
- Sp. 7—Usually with faint traces of eye-spots at least on fore wings below. (See Sp. 6, Group 6).—Certain forms of.....**Oeneis uhleri var varuna** (30)

Group 9

A—Small butterflies not over one and three-quarter inches.

- Sp. 1—Upper side conspicuously chequered dark grayish-brown and white.....**Pyrgus tessellata** (48)
- Sp. 2—White spots on fore wings only in small group near margin.....**Amblyscirtes vialis** (49)
- Sp. 3—Fore wings with a single irregular row of white spots running two-thirds across wing—a single white spot further in. These spots repeated on under side, and an irregular light band on under side of hind wing. Under side of fore wings tipped with gray, hind wings distinctly purplish-gray; size about one inch across.
.....**Amblyscirtes hegona** (50)
- Sp. 4—Upper side of fore wings with a group (usually three) of small whitish spots near front margin, a round spot and a dash near middle. Under side of both pairs of wings grayish outwardly, this gray band wider on the hind wings. A band of rather indistinct spots crossing hind wings at about outer two-thirds.
.....**Atrytonopsis hianna** (51)

Sp. 5—Upper side of fore wings with several whitish spots running half way across wing, these showing through below. Upper and under side of wings very similar in colour—darkish brown, a little lighter beneath. A very indefinite lighter band (sometimes of spots) running across about outer two-thirds of hind wings.

.....**Euphyes vestris** (Female) (44)

Sp. 6—Upper side of fore wings with a number of white spots forming an angulate line, with a group of small spots inwardly. Under side of hind wings crossed by two pairs of dark irregular lines. Size about one and a half inches.....**Cocceius pylades** (52)

Sp. 7—White spots on upper side of fore wings in an irregular line running more than half across, with a single white spot inwardly. Both pairs of wings have some creamy spots showing through.—

(i) About half of both wings below and above yellowish.
.....**Thanaos juvenalis** (Female) (53)

(ii) Majority of area of both wings below and above dark.
.....**Thanaos juvenalis** (Male)

B.—Large butterfly over two inches.

Sp. 8—Butterfly with very distinct white band across both wings.....**Basilarchia arthemis var rubrofasciata** (54)

Group 10

Sp. 1—Under side of fore wings with **several** rows of spots, sometimes ill-defined, near outer margin, the innermost white, edged outwardly with dashes of black. The apical angle distinctly gray....**Thanaos icelus** (55)

Sp. 2—Under side of forewings with **one** row of spots, sometimes ill-defined or even almost entirely lacking, at extreme outer margin. A second row sometimes more or less completely present some distance within. Size usually larger.....**Thanaos brizo** (56)

GROUP 11

Sp. 1—Under side of wings with a sub-marginal row of conspicuous red spots.....**Strymon titus** (43)

Sp. 2—Hind wings with tails.
.....**Strymon liparops var strigosa** (57)

Sp. 3—Under side of both wings outwardly grayish.
.....**Erebia discoidalis** (58)

Group 12

A—Inner margin of forewings (when set this is hind edge) straight.

Sp. 1—Forewings above with five or six conspicuous black marks.....**Aglais j—album** (59)

Sp. 2—Fore and hind wings above with a broad sub-marginal golden-brown band shading to lighter inwardly.
.....**Aglais milberti** (60)

B—Inner margin of forewings (when set this is hind edge) distinctly curved.

(a)—Large species, rarely less than two and a half inches across.

Sp. 3—Upper side of hind wings chiefly very dark brown or black.....**Polygonia interrogationis form umbrosa** (62)

Sp. 4—Upper side of hind wings coloured much as forewings.
.....**Polygonia interrogationis** (61)

(b)—Smaller species rarely over two inches across.

I. Colour of under side largely warm rich brown (not darker than between Prout's and Mummy Brown).

Sp. 5—External edge of median band on under side of hind wings nearly straight or but slightly curved near front margin, same edge almost regularly curved behind silver mark with one distinct angulation near hind margin. The dark median band, in which is the silver mark, edged with a lighter band internally, sometimes faint but usually distinct.

(i) Hind wings below contrastingly coloured.
.....**Polygonia satyrus** (Male) (63)

(ii) Hind wings below not contrastingly coloured, the outer half somewhat lighter than the inner.
.....**Polygonia satyrus** (Female)

Sp. 6—External edge of median band of hind wings below, deeply (almost semi-circularly) indented near front margin. The same edge behind silver mark very clearly angulate or wavy in several places. Median band of hind wings below not with a lighter band internally, though there are usually more or less distinct lighter blotches.

(i) Hind wings above not so heavily clouded as to obscure most of the markings. Colour predominantly tawny.

1. Colours of hind wings below contrasting.
.....**Polygonia comma form harrisi** (Male) (64)

2. Colours of hind wings below not contrasting though outer half lighter than inner.
.....**Polygonia comma form harrisi** (Female)

- (ii) Hind wings above heavily clouded, obscuring most of the markings. Colour predominantly dark.
 **Polygonia comma form dryas** (65)
- II. Colour of under side darker, usually largely grayish or blackish,—(when brown, not lighter than between mummy and seal brown except outer-half of forewings or in mottlings on hind wings.)
- Sp. 7—Under side of strikingly contrasting grays, blacks and
- (i) grayed browns, especially on outer halves of wings.
 **Polygonia faunus** (66)
- (ii) Inner half of under side of both pairs of wings approximately similar in colour, being made up of a multitude of very fine lighter and darker lines, the general effect being dark and somewhat even—no, or scarcely any, sharply contrasting markings. Sometimes the hind wings below are nearly of the same colour throughout.
- Sp. 8—Upper sides of wings rather heavily marked, especially the hind pair, which are frequently almost entirely dark..... **Polygonia progne** (67)
- Sp. 9—Upper sides of wings rather lightly marked, especially the hind pair, on which the margin is narrow and the sub-marginal yellowish spots distinct, and but little shading inwardly..... **Polygonia zephyrus** (68)

Group 13

A—Eye-spots much more conspicuous on under side.

- Sp. 1—Under side of hind wings with two large eye-spots; upper side of forewings with about four white spots near apical angle..... **Vanessa virginiensis** (69)
- Sp. 2—Under side of hind wings with four or five rather small eyed spots; upper side of forewings with six or more white spots near apex..... **Vanessa cardui** (70)

B—Eye-spots much more conspicuous above.

- Sp. 3—Forewings with two short red bands near front margin..... **Junonia caenia** (26)

Group 14

- Sp. 1—Large butterflies with veins heavily margined with black and hind wings **with** a black line running across the veins..... **Basilarchia archippus** (71)
- Sp. 2—Large butterflies with veins heavily margined with black and hind wings **without** black line across veins.
 **Danaus archippus** (72)

Sp. 3—Upper side of both wings very dark; forewings with conspicuous white spots and a red band. Hind wings with a conspicuous marginal red band.

.....**Vanessa atlanta** (73)

Sp. 4—Small butterfly—under side with conspicuous silvery crescents and dashes. Median band on hind wings beneath chiefly of crescent-shaped spots.

.....**Phyciodes gorgone** (74)

Sp. 5—Small butterfly—light markings of under side chiefly rounded or oblong. A conspicuous median band of oblong creamy spots and a sub-marginal row of silvery-white crescents on hind wings.

.....**Melitaea harrisi** (87)

Sp. 6—Large butterfly. Ground colour of upper side of forewings very dark. A conspicuous band of large white spots crossing both wings. A band of red-brown (ochraceous rufous) spots outside white band on hind wings. Blue crescents on outer margins of both wings.

.....**Basilarchia arthemis var rubrofasciata** (54)

Group 15

A—Smaller species—little, if at all, over one and a half inches.

Sp. 1—Under side of hind wings with a number of conspicuous “V” shaped black markings, several of these being in the middle of the wing.....**Brenthis freija** (75)

Sp. 2—Upper margins of both wings rather heavily bordered with black. Under side of hind wings with many conspicuous silver spots, rusty patches and black spots on a light cream-coloured ground. Under side of forewings with a marginal row of silver spots alternating with rusty blotches. A rusty spot with several black dots in it near apex.....**Brenthis myrina** (76)

Sp. 3—Upper side of both wings not heavily margined but with a row of sub-marginal “V” shaped marks. The spots of under side are not conspicuously silvered.

.....**Brenthis aphirape var dawsoni** (77)

B—Larger species—usually two or more inches in expanse.

Sp. 4—Ground colour of wings above pale fulvous. Dark markings heavy. Tips of forewings below gray-green. Hind wings below almost entirely gray-green with very little pale yellow showing. Spots well silvered. The usual sub-marginal yellow band is very narrow or almost wanting. Size about two and one half inches.

.....**Argynnis nevadensis form meadi** (78)

Sp. 5—Ground colour above yellowish fulvous. Dark markings heavy. Row of sub-marginal crescent spots on both wings above, forming continuous bands. Tips of forewings below yellowish. Ground colour of hind wings below, yellow with greenish or cinnamon brown, especially within the curved yellow sub-marginal band. This band is fairly wide and quite distinct. Sub-marginal row of silvered or dark spots on under side of both wings not conspicuously sagittate. Area outside these not marked off from rest of wing by fine line. Size about $1\frac{3}{4}$ to 2 inches.

.....**Argynnis eurynome** (79)

Sp. 6—Hind wings above dark, with two or three rows of lighter rounded spots. Under side of hind wings uniform brown in colour with irregular silver spots.

.....**Argynnis idalia** (80)

Sp. 7—Hind wings on under side dark brown; the silver spots, especially the outer row, in part or entirely heavily margined with darker. The pale yellow sub-marginal band very narrow. Upper side of both wings in both sexes heavily margined with black. All markings on upper side heavy and one complete zigzag line of six spots or more in middle of hind wing.

.....**Argynnis atlantis** (81)

Sp. 8—Inner portions of both pairs of wings on upper side conspicuously darker. Black markings heavy and conspicuous on forewings, usually all disconnected on hind wings. Under side of both wings with a rather uniform marginal broad band, and hind wings with rather wide cream-coloured sub-marginal band. Inner portion of hind wings dark. Size larger than the next—usually well over two and a half inches.

.....**Argynnis cybele** (82)

Sp. 9—Bright reddish fulvous above. Markings on upper side of both fore and hind wings conspicuously less heavy than in any of the preceding species. Crescent shaped spots of sub-marginal rows on both wings above, separated. Marginal bands of under side of wings rather narrow and made up of long light spots edged with darker. The row of silvered or dark spots within this mostly conspicuously sagittate. Area outside marked off from rest of wing by fine dark line. Sub-marginal cream-coloured band of hind wings rather narrow and inner portion of wing moderately light brown. Size averaging much smaller than preceding, usually much less than two and a quarter inches.

.....**Argynnis lais** (83)

Sp.10—Almost like Species 8 above. Males may be distinguished by the longer hair near the front margin of hind wings, (on the sub-costal vein), a purplish shading along the same vein, and the brighter red beneath the primaries. The female is apparently indistinguishable from female *lais*.

.....*Argynnis aphrodite form columbia* (84)

Group 16

A—Silver spots on under side of hind wings distinctly “V” shaped.
One species only.....*Phyciodes gorgone* (74)

B—Silver spots on under side of hind wings rounded or oblong except sub-marginal row which are more or less crescent-shaped.

Sp. 1—Sub-marginal row of crescents on under side of hind wings not complete—sub-marginal row of crescents on forewings usually very vague—sometimes wanting.

.....*Phyciodes nycteis* (85)

Sp. 2—Sub-marginal row of crescents on under side of hind wings complete and all usually very distinct; sub-marginal row of crescents on forewings usually distinct, though sometimes small. Black or very dark markings not very evident on under side, the spots being margined with brown. No dark line running across light area on hind wing above.

.....*Phyciodes hanhami* (86)

Sp. 3—Much like *hanhami* but all spots below clearly defined and bordered in most cases with blackish. A dark line runs across light area of hind wing above.

.....*Melitaea harrisii* (87)

Group 17

One species only—easily recognized by its heavy body, uniform upper colour of wings with orange-yellow spots on forewings and a conspicuous silvery-white blotch on the under side of hind wings.

.....*Epargyreus tityrus* (88)

Group 18

A—Size large—well over two inches.

One species only.....*Euptoieta claudia* (89)

B—Size smaller—never much over an inch and a half—generally less.

Sp. 1—Markings of under side of hind wings in part angulate, the sub-marginal row of dark spots being in part triangular.....*Brenthis chariclea* (90)

Sp. 2—All markings of under side of hind wings more or less rounded. Outer half purplish edged inwardly by a row of rusty spots. Outer margin of forewings slightly angled near apex. Basal portion of upper side of hind wings usually not clouded.....**Brenthis bellona** (91)

Sp. 3—Outer margin of forewings gently curved, not angled. More than basal half of upper side of hind wings always clouded with dark.....**Brenthis frigga** (92)

Group 19

Sp. 1—Forewings above more tawny than blackish. Tawny markings on both wings above with strong tendency to run together.....**Phyciodes tharos** (93)

Sp. 2—Forewings above more blackish than tawny. Tawny markings narrower than in **tharos**. Inner row of tawny spots on outer half of wing lighter in colour than, and well separated from, next row by dark background. The male almost entirely lacking the dark semi-circular patch on hind wing below characteristic of **tharos**.....**Phyciodes batesi** (108)

Group 20

Sp. 1—Upper side slaty, with two black spots on forewings, though others show through from below. Red crescents of hind wings not very conspicuous, each enclosing a black spot. Under side of both wings light gray.**Heodes dione** (94)

Sp. 2—Under side of forewings yellow-orange (about orange-ochraceous)—of hind wings light gray; forewings margined with gray, hind wings with a heavy band of orange. Upper side of forewings of male uniform coppery, of female—median area more or less orange red.....**Heodes thoe** (95)

Sp. 3—Under side of fore wings red-brown to orange (about orange-ochraceous)—of hind wings fawn. Marginal crescents on upper side of hind wings very wavy. Upper side of fore wings of male uniform coppery—of female, with the median area, yellowish brown.**Heodes helloides** (96)

Sp. 4—Upper side slaty with bluish reflections. Upper and under side of both wings margined with orange spots, those on the under side of the hind wings bordered externally with metallic blue scales.**Plebeius melissa** (Female) (5)

Group 21

- A—Upper side of hind wings uniform dark brown. Under side of hind wings yellowish brown. Dark brown patch at base of under side of fore wings.....**Polites cernes** (Male) (97)
- B—Upper side of hind wings almost uniformly pale brown. Under side with distinct greenish shades.....**Pamphila uncas** (Male) (98)
- C—Upper side of hind wings more or less distinctly margined with a band of dark brown.
- Sp. 1—Under side of hind wings margined with a band of yellow-brown enclosing a large irregular light yellow coloured blotch (lighter than yellow-buff).
.....**Polites peckius** (Male) (99)
- Sp. 2—Brown margin of upper side of hind wings very narrow; under side of both wings almost uniform golden-brown.....**Pamphila ottoe** (Male) (100)
- Sp. 3—Upper side of both wings broadly and somewhat indefinitely margined with dark brown. Under side of hind wings yellow; under side of fore wings with heavy dark blotch at base; remainder gold-brown with darker shading towards outer margin.
.....**Polites mystic** (Male) (101)
- Sp. 4—Upper side of hind wings rather indefinitely and widely margined with brown. Under side of hind wings with greenish shadings. Under side of fore wings greenish near tip, remainder largely yellow-brown.....**Pamphila comma** (Male) (102)

Group 22

- Sp. 1—Hind wings nearly uniform in colour above and below, and the fore wings similar in ground colour to the hind wings, with a slight lighter shading along the front margin, and a band of yellowish spots increasing in size towards base.....**Polites cernes** (Female) (97)
- Sp. 2—Hind wings much lighter in colour below than above. Fore wings below dark on hind margin, golden on front two-thirds.....**Oarisma garita** (103)

Group 23

- Sp. 1—Greater part of under side of fore wings dark—the front and side margins only being lighter.
.....**Ancyloxypha numitor** (104)
- Sp. 2—Great part of under side of fore wings light, there being a very dark blotch at base.
.....**Polites mystic** (Female) (101)

Group 24

Sp. 1—Ground colour of under side of hind wings greenish-gray—spots pearly white.

.....**Pamphila uncas** (Female) (98)

Sp. 2—Ground colour of under side of hind wings somewhat reddish-brown, with pearly-white spots.

.....**Pamphila comma** (Female) (102)

Sp. 3—Spots of under side of hind wings not forming continuous bands. Rounded and somewhat creamy in colour.

.....**Carterocephalus palaemon** (105)

Group 25

Sp. 1—Upper side of both wings chiefly light in colour.

.....**Poanes hobomok** (106)

Sp. 2—Upper side of both wings chiefly dark in colour—the lighter areas being rather small spots or streaks, rarely blotches.....

Polites peckius (Female) (99)

NOTES ON THE BUTTERFLIES GIVEN IN THE KEY

1. **Everes amyntula**, (The Western Tailed Blue).
Common throughout the Province, flying chiefly in early June. Mr. Bethune-Baker, an English authority, who has made an especial study of the species, says that it is of circumpolar distribution with geographical races and that Winnipeg is about the dividing line between the Eastern (**E. comyntas**) and Western American forms. Feeds on peas and vetches.
2. **Plebeius saepiolus**, (The Greenish Blue).
Another early flier. Common.
3. **Plebeius aquilo var rustica**, (The Rustic Blue).
Local and not usually common.
4. **Glaucopsyche lygdamus var couperi**, (Couper's Blue).
One of the earliest butterflies to appear. Common. Known in most collections as **afra**.
5. **Plebeius melissa**, (The Orange-margined Blue).
This species was described from Colorado but is not uncommon in Manitoba in the late summer.
6. **Plebeius scudderi**, (Scudder's Blue).
This species was described from Lake Winnipeg and is apparently confined to the Eastern part of the Province. This and **melissa** require more study and I would be glad to see specimens of each from any and all parts of Manitoba.

7. **Lycaenopsis pseudargiolus**, (The Common Blue).
Exceedingly variable but not very common here. The females are often very lovely.
8. **Lycaenopsis pseudargiolus var marginata**, (The Margined Blue).
Perhaps our earliest blue. Not common.
9. **Papilio glaucus var canadensis**, (Tiger Swallow-tail).
Our largest and most striking butterfly. Feeds on cherry, willow and many other shrubs.
10. **Papilio polyxenes**, (The Eastern Swallow-tail).
The caterpillar feeds on umbelliferous plants and can usually be found on parsley or parsnip.
11. **Papilio zelicaon**, (Zelicaon).
A northern species. Quite rare.
12. **Aglais antiopa**, (The Camberwell Beauty).
Common. The larva feeds chiefly on elms and willows.
13. **Nathalis iole**, (The Dwarf Yellow).
A rare visitor from the South.
14. **Eureme mexicana**.
A rare visitor from the Southern States.
15. **Eurymus philodice**, (The Common Sulphur).
16. **Eurymus chippewa**, (The Chippewa Sulphur).
Found only in Northern Manitoba.
17. **Eurymus interior**, (The Pink-edged Sulphur). Rare.
18. **Eurymus eurytheme, form eriphyle**, (Eriphyle).
19. **Eurymus eurytheme**, (Eurytheme).
The Clouded Sulphurs form one of the most difficult studies among the butterflies. Some species, particularly **eurytheme** and **philodice**, are extraordinarily variable, there being light and dark forms, dwarfs and giants, so doubtless considerable trouble will be found in using the key.
20. **Zerene caesonia**.
A rare visitor from the Southern States.
21. **Pieris napi**, spring form **oleracea**, (The Mustard White).
Not common.
22. **Pieris rapae**, (The Cabbage White).
Very destructive to cabbages, nasturtiums and other cruciferous plants.
23. **Pieris protodice**, (The Common White).
Quite rare in the Province now, seemingly being supplanted by that undesirable alien, the Cabbage White.
24. **Zegris olympia**.
Another visitor from the South West.

25. **Cissia eurytus**, (The Little Wood-Satyr).
Rather common in open woodlands. The larva feeds on grasses.
26. **Junonia coenia**, (The Peacock Butterfly).
Very rare. Feeds on plantain.
27. **Neomonois ridingsi**, (Riding's Satyr).
A butterfly found commonly in Manitoba on sandy prairie.
28. **Cercyonis alope var nephele**, (The Clouded Wood-Nymph).
Common in meadows. Larva feeds on grasses.
29. **Oeneis alberta**, (The Albertan Arctic).
Flies in late May in similar situations to Riding's Satyr.
30. **Oeneis uhleri var varuna**, (Varuna).
Also found on dry prairies. Resembles **alberta** very closely.
31. **Oeneis macouni**, (Macoun's Arctic).
Named in honour of Prof. Macoun of Ottawa. Occurs probably throughout the rocky north eastern and northern part of the Province, but has so far been taken only on the east shore of Lake Winnipeg.
32. **Enodia portlandia**, (The Pearly Eye).
This beautiful butterfly is quite common on the edges of woods.
33. **Oeneis jutta**, (Jutta).
Found usually in open glades in Larch swamps.
34. **Erebia epipsodea**.
An occasional visitor from the West.
35. **Satyrodes canthus**, (The Common Grass-Nymph).
Found in damp grassy spots, usually near woods.
36. **Coenonympha inornata**, (The Plain Ringlet).
Common on prairie everywhere.
37. **Oeneis chryxus var calais**, (Calais).
A northern species.
38. **Strymon acadica**, (The Acadian Hair-streak).
Rare. Feeds on willow.
39. **Strymon edwardsi**, (Edward's Hair-streak).
Rare. Feeds on oak.
40. **Strymon calanus**, (The Banded Hair-streak).
Rare. Feeds on oak.
41. **Strymon liparops**, (The Striped Hair-streak).
Found usually in the vicinity of oaks.
42. **Strymon melinus**, (The Common Hair-streak).
Feeds on hop. Rare here.

43. **Strymon titus**, (The Coral Hair-streak).
Feeds on wild cherry and plum. Probably our commonest Hair-streak.
44. **Euphyes vestris**, (The Dun Skipper).
Not common. Found usually near damp ditches.
45. **Incisalia augustus**, (The Brown Elfin).
Rare and local. Flies early in May.
46. **Incisalia polios**, (Polios).
Caterpillar feeds on *Arctostaphylos Uva-ursi*. Not uncommon in the sand-hill districts of the Province.
47. **Incisalia nippon**, (The Banded Elfin).
Found only in the vicinity of conifers, on which the caterpillar feeds.
48. **Pyrgus tessellata**, (The Northern Checkered Skipper).
Rather rare.
49. **Amblyscirtes vialis**, (The Roadside Skipper).
50. **Amblyscirtes hegon**, (The Pepper and Salt Skipper).
These two species resemble each other quite closely. The former is very rare here, the latter rather so and very local. Both are found in sunny spots in woods.
51. **Atrytonopsis hianna**, (The Hianna Skipper).
Rare and local.
52. **Cocceius pylades**, (The Northern Dusky-Wing).
Flies in late spring.
53. **Thanaos juvenalis**, (Juvenal's Dusky-Wing).
Another early-flying species.
54. **Basilarchia arthemis var rubrofasciata**, (The Red-Banded White Admiral).
This handsome butterfly has recently been given the above name by Drs. Barnes and McDunnough. Its type locality is Cartwright, Manitoba. Found rather commonly on the edges of woods or in sunny glades.
55. **Thanaos icelus**, (The Dreamy Dusky-Wing).
Both this and the next species are to be found in May. They resemble each other very closely and specimens are often seen which are very difficult to place correctly. Locally common.
56. **Thanaos brizo**, (The Sleepy Dusky-Wing). Locally common.
57. **Strymon liparops var strigosa**, (The Striped Hair-streak).
Distinguished from **liparops** only by the orange-shaded forewings.
58. **Erebia discoidalis**, (The Red Streaked Alpine).
A North Western species only occasionally straggling into Southern Manitoba.

59. **Aglais j-album**, (The Compton Tortoise-Shell).
Usually very rare here. Feeds on willow.
60. **Aglais milberti**, (Milbert's Tortoise-Shell).
Common. Usually to be seen on the first warm day of spring. Larva feeds on nettle.
61. **Polygonia interrogationis**, (The Question Mark). Quite rare.
62. **Polygonia interrogationis form umbrosa**.
One of our most beautiful butterflies.
63. **Polygonia satyrus**, (The Satyr).
Not over common. Feeds on nettle.
- 64-5. **Polygonia comma**, (The Comma Butterfly).
Not very common. Feeds on nettle.
66. **Polygonia faunus**, (The Faun).
In this species the indentations of the hind wings are deeper than on any other that occurs here. Feeds on willow.
67. **Polygonia progne**, (The Progne).
One of the commonest of our Tortoise-Shells. Out on the first warm day of spring. Feeds on elm and various species of currants.
68. **Polygonia zephyrus**, (The Zephyr). Rare.
69. **Vanessa virginiensis**, (Hunter's Butterfly).
A beautiful butterfly of regular but not common occurrence.
70. **Vanessa cardui**, (The Painted Lady).
A butterfly of almost world-wide distribution. Found everywhere where thistles grow. Occurs sometimes in swarms followed perhaps by years in which almost none will be seen.
71. **Basilarchia archippus**, (The Viceroy).
The classic example of mimicry. It is a close relative of the edible White Admiral, but mimics the inedible Monarch for the sake of protection. Not common. Feeds on oak and other trees.
72. **Danaus archippus**, (The Monarch).
Very common. Gathers in swarms in the autumn and migrates. Sometimes one of these swarms will settle on a small tree, literally covering it. The caterpillar is a beautiful object. It feeds on milkweed.
73. **Vanessa atlanta**, (The Red Admiral).
Usually fairly common. Found throughout the Northern Hemisphere. The larva feeds chiefly on nettles.
74. **Phyciodes gorgone**, (The Silver-spotted Phyciodes).
A beautiful little species. I have taken it occasionally rather commonly in grassy hollows among Silver-berry.
75. **Brenthis freija**, (The Lapland Fritillary).
An Arctic or Sub-Arctic species only occasionally moving into Southern Manitoba.

76. **Brenthis myrina**, (The Silver-bordered Fritillary).
A common little species found in damp spots near woods.
77. **Brenthis aphirape var dawsoni**, (Dawson's Fritillary).
Another Sub-Arctic species. Common northward from Le Pas.
78. **Argynnis nevadensis form meadi**, (Mead's Fritillary).
Easily distinguished by its hind wings, greenish on the under sides. Occurs in the sandier parts of the Province.
79. **Argynnis eurynome**, (Eurynome).
Known from Manitoba only by one specimen in the National Collection. Taken at Hamiota.
80. **Argynnis idalia**, (The Regal Fritillary). Very rare.
81. **Argynnis atlantis**, (The Mountain Fritillary).
Not common and local.
82. **Argynnis cybele**, (The Great Spangled Fritillary).
Very common. The larva of this, as of most fritillaries, feeds on violets.
83. **Argynnis lais**, (The North Western Fritillary): Very common.
84. **Argynnis aphrodite form columbia**, (The Columbian Fritillary).
Rare and liable to be mistaken for **lais**.
85. **Phyciodes nycteis**, (Nycteis).
Not uncommon throughout the Province, usually in moist, grassy places.
86. **Phyciodes hanhami**, (Hanham's Crescent).
Named by the late Dr. James Fletcher in honour of its discoverer, Mr. A. W. Hanham, one of Manitoba's pioneer entomologists. Seems to be quite rare and local.
87. **Melitaea harrisi**, (Harris' Chequer-Spot).
Apparently very rare. This and the two preceding species resemble each other closely.
88. **Epargyreus tityrus**, (The Silver Spotted Skipper).
Quite different from any other butterfly on our list, the large silvery-white blotch on the middle of the under side of the hind wings at once distinguishing it. Locally and periodically common.
89. **Euptoieta claudia**, (The Variegated Fritillary).
This species occasionally becomes of economic importance, the larva destroying pansies.
90. **Brenthis chariclea**, (Chariclea).
A Sub-Arctic species. Our form seems intermediate between forms **boisduvali** and **grandis**. Common northward.
91. **Brenthis bellona**, (Meadow Fritillary).
Very common everywhere. Sometimes very dark specimens occur, but the angled margin of fore wings distinguishes them from related species.

92. **Brenthis frigga**, (Frigga).
Very rarely straggling from its northern range into Southern Manitoba.
93. **Phyciodes tharos**, (The Pearl Crescent).
Very common everywhere. The females frequently cannot be distinguished from **batesi**, but fly a week or so later. See No. 108.
94. **Heodes dione**, (Dione).
Not common. Found in grassy situations.
95. **Heodes thoe**, (The Bronze Copper).
Flies in late summer. Not common.
96. **Heodes helloides**, (The Purplish Copper).
Common in late summer and early autumn. The Purplish males are very beautiful.
97. **Polites cernes**, (The Tawny Edged Skipper).
Not uncommon in early June near waysides or damp ditches.
98. **Pamphila uncas**, (Uncas). Rather rare.
99. **Polites peckius**, (The Yellow-Spotted Skipper).
Easily recognized, even when flying, by the conspicuous yellow blotch on under side of hind wings.
100. **Pamphila ottoe**, (Ottoe).
Quite rare and apparently very local. I have taken it only once, at Treesbank, where it was locally common in July on a dry bank. It was flying to *Larinaria* sp.
101. **Polites mystic**, (The Long Dash).
One of our commoner Skippers in early summer.
102. **Pamphila comma**, (The Canadian Skipper).
Our form of **comma** is usually the variety known as **manitoba**, to which the common name given above properly applies. It flies in late summer and autumn.
103. **Oarisma garita**, (Garita).
Quite rare. Common Southward.
104. **Ancyloxypha numitor**, (Numitor).
Among grass in wet places.
105. **Carterocephalus palaemon**, (The Arctic Skipper).
Found all through Canada. Quite unlike any other species.
106. **Poanes hobomok**, (The Hobomok Skipper). Not very common.
107. **Euchloe ausonides**, (Ausonides).
Our Manitoban record for this species depends upon a single specimen taken at Lake George, fifty or sixty miles N.E. of Winnipeg, by Mr. J. D. Suffield, on May 24th, 1921. It should be looked for in the east and north of the Province.

108. **Phyciodes batesi**, (Bates' Crescent).

This species has been confused with **P. tharos** (q.v.). The males are fairly easily separable, the females frequently only by association with the males. The males fly about two weeks earlier than **tharos** and are on the wing some days earlier than the females. See Canadian Entomologist, Vol. 52, No. 3, p. 56.

ORDER FOR ARRANGEMENT OF BUTTERFLIES

(The numbers given refer to the check list by Drs. Barnes and McDunnough.)

Papilionidae

- 4. *Papilio polyxenes*, Fabr.
- 6. *Papilio zelicaon*, Luc.
- 13a. *Papilio glaucus* var *canadensis*, R. & J.

Pieridae

- 34. *Pieris protodice*, Bdv. & Lec.
- 35f. " *napi*, spring form *oleracea*, Harr.
- 37. " *rapae*, Linn.
- 38. *Nathalis iole*, Bdv.
- 40. *Euchloe ausonides*, Bdv.
- 41. *Zegris olympia*, Edw.
- 55. *Zerene caesonia*, Stoll.
- 59. *Eurymus eurytheme*, Bdv.
- " " form *eriphyle*, Edw.
- 60. " *philodice*, Godt.
- 63. " *interior*, Seud.
- 68a. " *chippewa*, Edw.
- 74. *Eurema mexicana*, Bdv.

Danaidae

- 84. *Danaus archippus*, Fabr.

Satyridae

- 90. *Enodia portlandia*, Fabr.
- 97. *Cissia eurytus*, Fabr.
- 100. *Satyrodes canthus*, Linn.
- 103. *Coenonympha inornata*, Edw.
- 108. *Neominois ridingsi*, Edw.
- 111e. *Cereyonis alope* var *nephele*, Kby.
- 120. *Oeneis macouni*, Edw.
- 122a. " *chryxus* var *calais*, Scud.
- 123. " *jutta*, Hbn.
- 124. " *uhleri* var *varuna*, Edw.
- 126. " *alberta*, Elwes.
- 137. *Erebia discoidalis*, Kby.
- 142. " *epipsodia*, Butl.

Nymphalidae

Nymphalinae

- 151. *Euptoieta claudia*, Cram.
- 153. *Argynnis idalia*, Dru.
- 158. " *cybele*, Fabr.
- 159e. " *aphrodite*, form *columbia*, Hy. Edw.
- 160. " *lais*, Edw.
- 162. " *atlantis*, Edw.
- 171a. " *nevadensis*, var *meadi*, Edw.
- 186. " *eurynome*, Edw.
- 187. *Brenthis myrina*, Cram.
- 189e. " *aphirape* var *dawsoni*, B. & McD.
- 193. " *chariclea*, Schneid. Our species is between vars. *boisduvali* and *grandis*.
- 195. " *freiija*, Thunb.
- 197. " *frigga*, Thunb.
- 199. " *bellona*, Fabr.
- 228. *Melitaea harrisi*, Scud.
- 242. *Phyciodes gorgone*, Hbn.
- 243. " *nycteis*, D. & H.
- 244. " *hanhami*, Fletcher.
- 247. " *tharos*, Dru.
- 248. " *batesi*, Reak.
- 268. *Polygonia interrogationis*, Fabr.
- 269. " " form *umbrosa*, Lint.
- 270. " *comma*, Harr.
- 271. " *satyrus*, Edw.
- 273. " *faunus*, Edw.
- 277. " *zephyrus*, Edw.
- 277. " *progne*, Cram.
- 278. *Aglais j-album*, Bdv. & Lec.

280. *Aglais*, *milberti*, Godt.
 281. " *antiopa*, Linn.
 282. *Vanessa atlanta*, Linn.
 283. " *virginiensis*, Dru.
 284. " *cardui*, Linn.
 286. *Junonia coenia*, Hbn.
 305a. *Basilarchia arthemis*, var *rubrofasciata*, B. & McD.
 308. " *archippus*, Cram.

Lycaenidae

Theclinae

352. *Strymon melinus*, Hbn.
 358. " *titus*, Fabr.
 359. " *acadica*, Edw.
 363. " *edwardsi*, Saund.
 365. " *calanus*, Hbn.
 367. " *liparops*, Bdv. & Lec.
 367a. " *liparops* var *strigosa*, Harr.
 379. *Incisalia augustus*, Kby.
 385. " *polios*, C. & W.
 388. " *niphon*, Hbn.

Chrysophaninae

402. *Heodes dione*, Scud.
 404. " *thoe*, Bdv.
 407. " *helioides*, Bdv.
 425. *Everes amyntula*, Bdv.
 426. *Plebeius scudderi*, Edw.
 427. " *melissa*, Edw.
 429a. " *aquilo* var *rustica*, Edw.
 430. " *saepiolus*, Bdv.
 449a. *Glaucopsyche lygdamus* var *couperi*, Grt.
 452. *Lycaenopsis pseudargiolus*, Bdv. & Lec.
 " " var *marginata*, Edw.

Hesperiidae

Pyrrhopyginae

468. *Epargyreus tityrus*, Fabr.
 483. *Cocceius pylades*, Scud.
 495. *Pyrgus tessellata*, Scud.
 517. *Thanaos icelus*, Lint.
 518. " *brizo*, Bdv. & Lec.
 525. " *juvenalis*, Fabr.

Pamphilinae

536. *Carterocephalus palaemon*, Pall.
544. *Ancyloxypha numitor*, Fabr.
547. *Oarisma garita*, Reak.
553. *Pamphila uncas*, Edw.
562. " *comma*, Linn.
568. " *ottoe*, Edw.
576. *Polites cernes*, Bdv. & Lec.
581. " *mystic*, Scud.
583. " *peckius*, Kby.
592. *Poanes hobomok*, Harr.
604. *Euphyes vestris*, Bdv.
615. *Atrytonopsis hianna*, Scud.
626. *Amblyscirtes vialis*, Edw.
635. " *hegon*, Scud.



